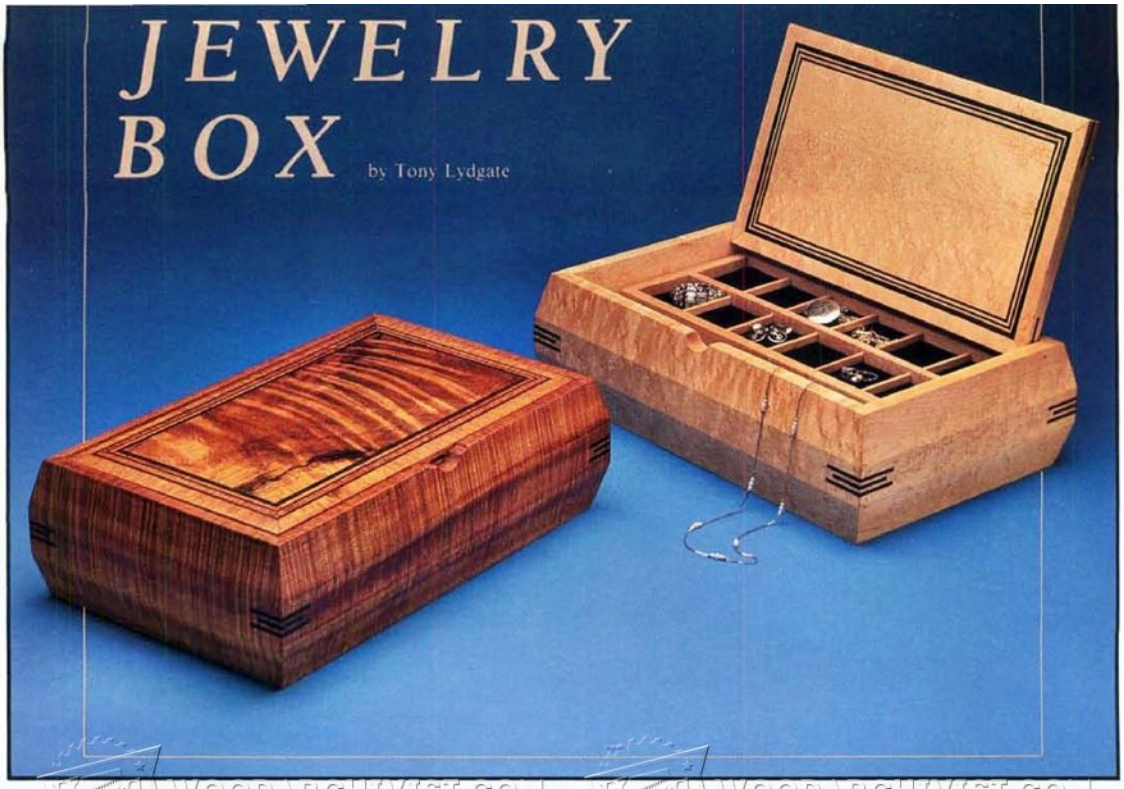
JEWELRY BOX

by Tony Lydgate



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The most important thing about making this box is the choice of lumber. The finished piece should have a truly gemlike appearance, so select stock that is highly figured. I use curly, tigertail/fiddleback, bird's-eye or anything else that's especially beautiful. It's worth spending money on the materials; you only need about three board feet.

Select material that when ripped in half will yield two pieces, ⅞ in. thick by 4 in. wide by 24 in. long. The ideal stock is about 9 in. wide by 2 ft. long.

Crosscut to yield the two sides (A) and the two ends (B). These parts should be a little oversize in thickness, length and width. Then joint one face of each piece to get it perfectly flat. If you're using highly figured stock, however, watch out — even a sharp jointer can tear the grain. If a piece is *too figured* to joint, I use a 6 in. by 48 in. belt sander with a 60-grit belt to sand the face smooth. Once you have established the flat face, rip the sides and ends to exactly 4 in. wide.

Mill the grooves for the bottom (C). Also, cut the groove in the end pieces to accept the rails (D) that support the tray. The location of the groove is 1¼ in. down from the top edge.

Crank your table saw blade over to 45 degrees, and check the setting by carefully milling several test pieces. Make sure you get a true 90-degree angle when you butt the mitered test pieces together. Mill a 45-degree miter on one end of each of the sides and ends. Then set up a stopblock on your auxiliary miter fence, and cut the other ends to establish the 14 in. and 9 in. lengths respectively. Make the bottom a perfect rectangle, about 1/16 in. smaller than the space it fits into.

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
	Box		
A	Side	⅞ × 4 × 14	2
B	End	⅞ × 4 × 9	2
C	Bottom	¼ × 7 1/16 × 12 1/16	1
D	Rail	⅛ × ¾ × 7¼	2
E	Post	5/16 × 5/16 × 1¼	2
F	Border	13/16 × 15/16 × 20*	2
G	Panel	¾ × 5⅜ × 10⅜	1
	Tray		
H	Side	⅜ × ¾ × 12 1/16	2
I	End	⅜ × ¾ × 5	2
J	Bottom	⅛ × 5⅛ × 11 1/16	1
K	Center Divider	5/16 × ½ × 11 9/16	1
L	Divider	1/16 × ¼ × 4¾	5

* Border lamination dimensions are at rough lamination stage, before cutting and shaping.

You are now about ready to glue up the box. First polish the inside faces of the sides and ends. I use the 6 in. by 48 in. belt sander, with a well-worn 120-grit belt. A pad sander will also get the job done. Vibrate the veneer side of the plywood bottom with 220-grit paper, if it needs it. Don't sand too long, though, as many veneer plywoods have a flitch that is paper-thin.

I use duct tape or masking tape for many glue-up operations. It's often awkward to use clamps for smaller projects such as boxes. Put a piece of 2 in. wide tape that's about 4 in. long over the miters of the two long sides. The point of the miter should be positioned right at the center of the tape.

Run a bead of glue into the bottom groove of all four pieces, and spread an even layer of glue over the miters on the ends only. Don't let the glue get all the way to the inner edge of the miter. With the box right-side-up, put the bottom in one side (be sure the veneer side of the bottom is down), and add one end. Butt the miters together, make sure they're true, and wrap the other half of the tape around the end. Add the second side, wrap its tape, and finally the other end, wrapping again with tape. Check your box with a try

square laid flat on the workbench.

Turn the box over to check that the joints are tight at the bottom. If there's glue squeeze-out, wait about an hour and then carefully chisel the half-dry beads off. If you use white glue, the beads should be the consistency of chewing gum and will scrape off easily.

After the box has dried, mill the kerfs for the exposed splines. These are both decorative and structural, since they reinforce the miter joint. Use the jig shown in Fig. 1. This jig holds the box at 45 degrees to the table, and is guided against a high auxiliary rip fence. Practice a few cuts with the jig and some 4 in. wide scrap to be sure that the groove for the middle spline is in the precise center of the box side.

The blade height setting for the middle spline groove is $^{11}/_{16}$ in., while the blade height for the two deeper grooves is $^{7}/_{8}$ in. If your setup for the middle groove is accurate and on-center, then you can mill both grooves for the outer splines using the same fence setting. Simply flip the box over so the opposite edge is against the jig.

Whether I make this box from curly Hawaiian koa or bird's-eye maple, I use Indian rosewood for the black accent trim on the lid and for the splines. You can use other woods, but I'd hold to the theme of using the same species for the lid accents and the splines.

The thickness of the spline stock must be equal to the width of the groove that the saw blade created. Resaw stock to the required thickness on the table saw, but take care not to work with anything less than a 12 in. length. Use your pushstick for this and all other table saw ripping operations outlined in this article. I use a carbide

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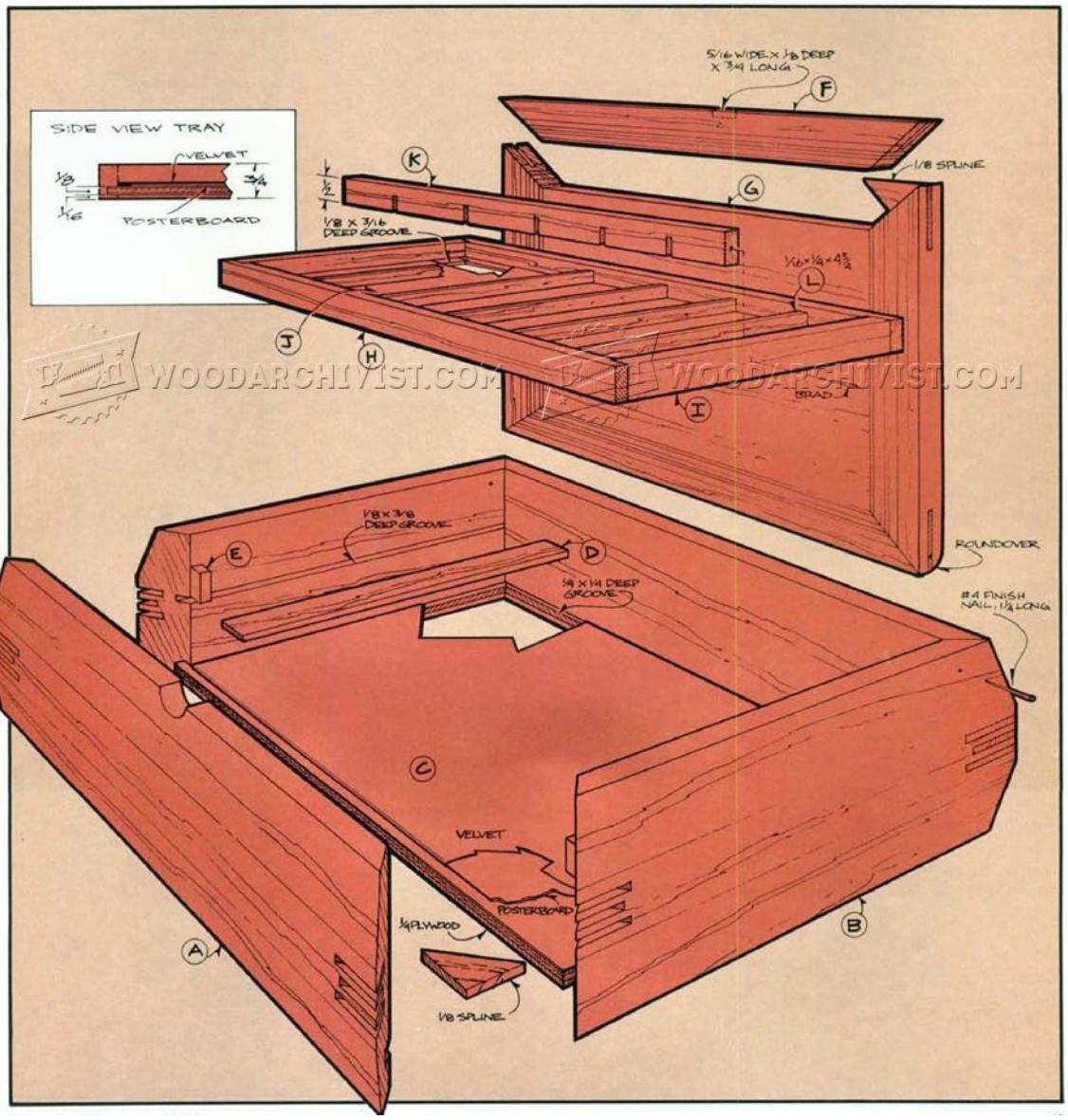


50-tooth alternate top-bevel blade. This blade should leave a smooth enough cut so no jointing is needed.

Use the band saw to cut the spline stock into triangular pieces, about ⅛ in. larger all around than final size. Dip the splines in glue and insert them in the grooves. This is one time when you want to see glue slobbering out. Too little glue and there may be gaps *around the* splines that you'll need to fill later. Let the glue dry overnight. Then mill off the excess length of the splines on the band saw, and sand flush on the belt or disk sander. You should have a box that's a perfect rectangle, with three splines at each corner.

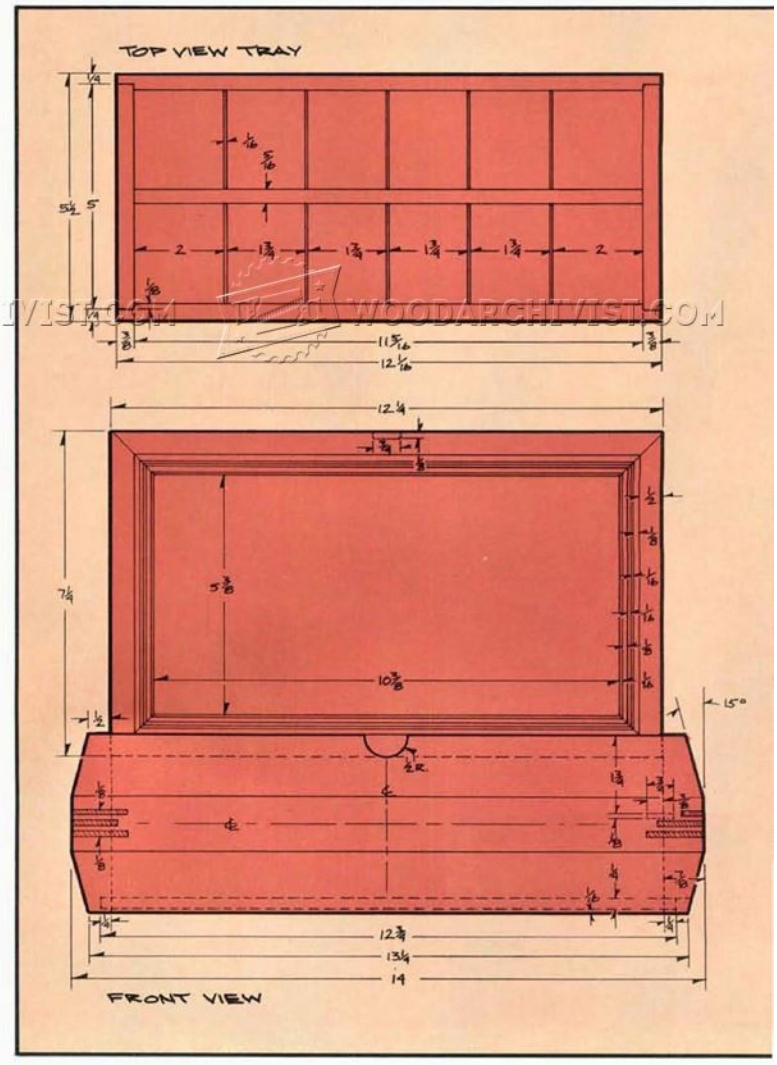
The lid is a series of strips (F) laminated together and then applied around a center panel (G). To make the lid, you'll need to first cut stock (use the same woods that you selected for the box) into a series of strips of varying thicknesses that are all $^{13}/_{16}$ in. wide. For the boxes shown I used an outer border about ½ in. thick, followed by alternating strips of dark and then light wood that are ⅛ in., $^{1}/_{16}$ in., $^{1}/_{16}$ in., ⅛ in., and $^{1}/_{16}$ in. thick respectively.

I start with two pieces of koa or bird's-eye maple and two pieces of Indian rosewood. All four pieces should be $^{13}/_{16}$ in. thick by 4 in. wide by 20 in. long. Once I'm sure the pieces are the same size, I set the rip fence on the table saw so that I get, to the left of the saw blade, strips as thin or thick as I like. Don't try to get the strips to the right of the blade (between the blade and the fence) — this is difficult and dangerous. I now rip four strips (two koa or bird's-eye and two rosewood) at the same fence setting. Move the fence a little to the left and rip four more strips, and so on until the stock is too thin to rip anymore. I now have strips to laminate lids for a series of boxes.

To glue up the strips, first make a gluing jig out of a piece of ¾ in. thick plywood about 7 in. wide and 22 in. long, and two strips of ¾ in. plywood about 2 in. wide by 22 in. long. Lay newspaper down on the 7 in. wide plywood, then one-by-one laminate the strips in the order you like, starting with the ½ in. thick border strip. You should have six layers. Add the 2 in. wide plywood clamping strips on either side, and clamp crossways with three bar clamps. Place two short clamping blocks over the top of the laminations and clamp them to the plywood base with two 6 in. clamps to keep the laminations from buckling (Fig. 2). Allow to dry for at least 24 hours. Repeat the procedure for the second 20 in. long lamination, taking care to keep the individual strips in the same order.

When the lid border lamination has dried, crack it out of its cocoon of newspaper and glue. Crosscut it to yield a side lamination and an end lamination, about 12½ in. and 7½ in. long respectively, or just slightly longer than the final length and width of the lid. Set the rip fence to about $^{13}/_{16}$ in. and raise the blade to a 1 in. height. With the laminations on edge, rip one face to clean off the excess glue and produce a smooth surface. Move the fence in so that it's ¾ in. from the blade, turn the pieces, and rip again to clean up the opposite face. Repeat this process for the second lamination.

Select the center panel from your finest figured stock. Make sure it is kiln dried and has been allowed to acclimate. A center piece of solid wood this size will expand and contract slightly with changes in climate. The lid will not come apart, however, because the center panel is edge-glued to the laminated border, which is splined together. Prepare the stock for the center panel as you prepared the sides and ends. Keep it as thick as possible, ideally about ⅞ in. Make sure it is a true rectangle at least large enough so that its width plus the two laminations and its length plus the two laminations are slightly larger than the box open-



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ing. Then rip the panel in a series of cuts, taking off only a small bit at a time, until it's just wide enough to fit in the box with the laminations all around.

Once the lid panel and the lid border are cleanly milled, miter the border and glue it on. Let the assembly dry.

After the bevels are cut on the lid, it will be only ½ in. thick at the perimeter. Center the lid splines on that ½ in. Using the table saw jig you made for the spline grooves in the box, cut the spline grooves in the lid. Glue the splines in place and let dry.

Trim the splines using the band saw, and sand them flush. Also sand the inside face of the lid flat. The top of the lid is beveled on the table saw. Raise the blade as high as it will go and incline it 6 degrees off the vertical. Locate an auxiliary rip fence so that you'll have the ½ in. thickness remaining at the edge. Cut the long bevels first, and then the short bevels. If your center panel is about ⅞ in. thick, as mine is, then you'll end up with a small flat at the top.

Now use the belt sander to soften the sharp edges of the bevels and produce the domed shape. Don't reduce the thickness at the edge; concentrate your efforts toward the center. Also, round the rear edge of the lid as shown so it will not bind when opened.

Fit the lid by sanding the edges till it just slips within the box. Then wedge the lid in place with a few slips of paper, and drill the 3/32 in. diameter by 1½ in. deep hinge pin holes. It's important that you select the proper hardware for this part — and spare no expense. *I use* four-penny finish nails, $1.79 for a box of 1000. Locate the hinge pin hole about 1⅜ in. from the back of the box (see Side View), centered squarely in the middle of the spline in the lid. The idea is to position the hole so the lid tilts back at a comfortable angle when open. That way it won't unexpectedly slam shut on its owner's fingers.

Once you are satisfied with the lid location, remove it and cut the bevels on the sides and ends of the box. These bevels are cut with the table saw blade angled to 15 degrees. Set up your fence so that the thickness of the sides at the top and bottom edges is ½ in. Sand the bevels, but do not soften the crisp corners. Fill any gaps with a mixture of sawdust and glue before final sanding.

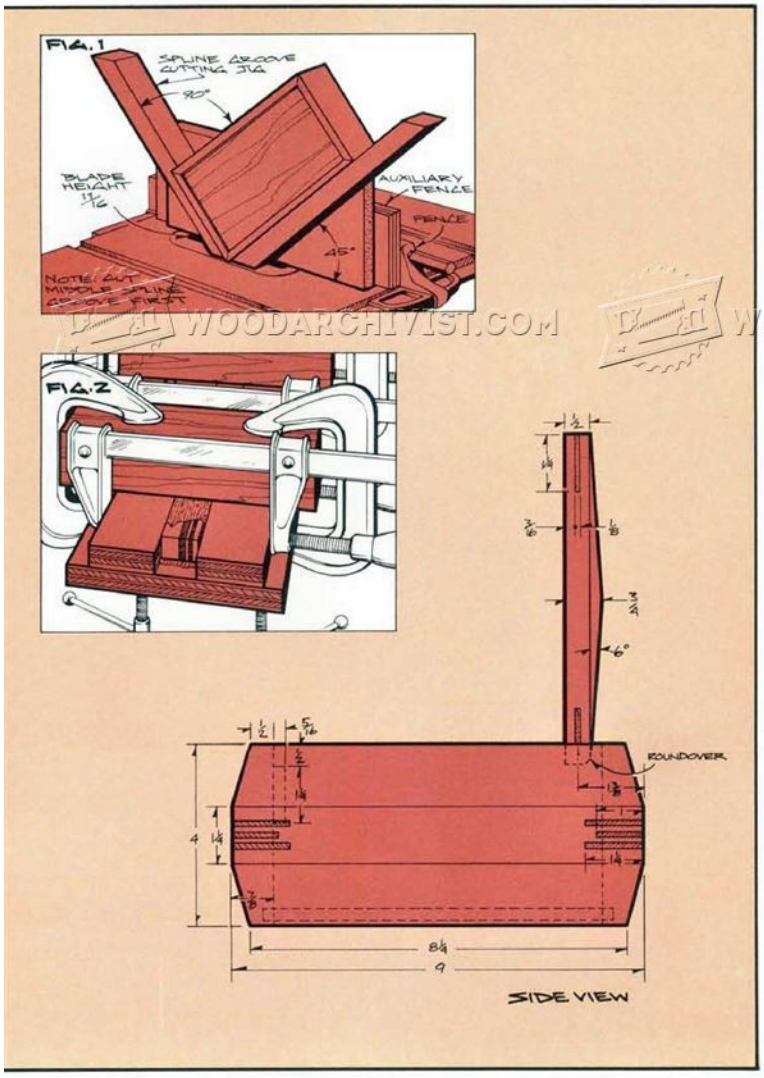
Next, cut the two rails that support the tray, and the two posts (E) that support the lid. Glue these parts in place, but test-fit the posts to make certain they stop the lid flush with the top.

I cut the thumb radius in the box front by roughing it in with the chisel, and then wrapping some sandpaper around a 1 in. diameter dowel to final shape the radius. The thumb slot in the front edge of the lid can be cut on an overarm pin router, if you have one, or by drilling a series of side-by-side holes with a 5/16 in. diameter drill bit. Clean out the waste with a sharp knife.

To final mount the lid, chop the heads off the finish nails, drive them halfway through the box side with a tiny punch or another nail, and plug the holes. I sand some stock to a 3/32 in. diameter for the plugs.

Finish the box with Watco oil. Flood on a coat, rub with 00 steel wool, and wipe dry. Wait 36 hours, then steel wool to remove the Watco crust. Blow off the dust and apply paste wax.

The tray is a straightforward construction of ends (H) rabbeted into sides (I) assembled around a plywood bottom (J). A velvet-over-posterboard liner cushions items placed in the box. The divider assembly (K and L) is mounted over the liner and is cut for a press-fit into the tray. Brads through the tray ends anchor it.



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